What Does "No Opinion" Mean in the HINTS?

Michael P. Massagli, Ph.D.

K. Vish Viswanath, Ph.D.

Dana-Farber Cancer Institute

“There has been little formal research on the use of knowledge questions” (in surveys)
– Sudman and Bradburn, 1982:117.

- Common Practices (e.g. Fowler, 1995: 67-69)
  - Ask for a self-evaluation of knowledge
  - True-false questions
  - Multiple choice questions
  - Open-ended short-answer questions

Self-Evaluation

- How much would you say you know about the relationship between smoking and cancer – a lot, some, a little, or nothing at all?
- Do you think that smoking increases a person's chances of getting cancer – yes or no?

True-False

- Smoking increases a person's chance of getting cancer – true or false?

Multiple-Choice

- Which of the following is most likely to increase a person's chance of getting cancer - Smoking, Being hit in the breast, Having a family history of cancer, or Pesticides?
- Which of the following is least likely to increase a person's chances of getting cancer – smoking, exposure to the sun, pollution, or none of the above?

Open-ended Short-answer

- Please tell me the things you are sure will increase a person’s chances of getting cancer?

Issues for the Question Designer - I

- What kind of knowledge (active, specific) and how much?
- Difficulty of questions – will affect estimates, distribution of population
  - Recognition vs.. recall; open-ended; plausibility of multiple-choice options
- Perceived threat
- False positives
  - Explicit offer of ‘don’t know’?

Issues for the Question Designer - II

- Cueing
  - Information to frame adequate answers vs.. help getting correct answer
- Reliability
- Multiple-items and inter-item relationships
  - Is there a latent variable? How do items relate to it?
    - Item universe, sampling
    - Number of items
    - Response options
    - Index vs.. scale

HINTS CK13 questions:

"I'm going to read you some things that may affect a person's chances of getting cancer. Do you think that [X] increase(s) a person's chances of getting cancer a lot, a little, or not at all or do you have no opinion?

[Don't know and refused taken if volunteered; respondents randomly assigned to list A or B]

List A (n = 3,204)	**List B (n = 3,165)**
A – smoking	B – eating a high-fat diet
E – pesticides or food additives	D – exposure to the sun
G – not eating much fiber	H – not eating many fruits and vegetables
I – stress	J – drinking a lot of alcoholic beverages
K* – being hit in the breast	L – having many sexual partners
M – having a family history of cancer	N – being a particular race or ethnicity
O – not getting much exercise	R – pollution
* only asked of women	S – radon

HINTS CK-14:

Tell me how much you agree or disagree with the following statements, or if you have no opinion.

- It seems like almost everything causes cancer.
- There's not much people can do to lower their chances of getting cancer.
- There are so many different recommendations about preventing cancer, it's hard to know which ones to follow.
  - Would you say you strongly agree, somewhat agree, somewhat disagree, strongly disagree, or you have no opinion?

Relative Frequency Distribution – CK13 (A list)

N=3,204	A lot	A little	Not at all	**No opinion**	Refused	*Don't Know*
Smoking	84.7 %	9.0	1.2	**4.7**	0.0	*0.3*
Pesticides or food additives	41.4 %	38.5	3.2	**16.0**	0.0	*1.0*
Not eating much fiber	33.6 %	34.2	8.1	**22.2**	0.1	*1.9*
Stress	36.3 %	31.8	15.2	**15.6**	0.0	*1.1*
Being hit in the breast (n=1,912)	15.8 %	28.0	29.3	**24.5**	0.0	*2.4*
Having a family history of cancer	75.7 %	18.9	2.2	**2.8**	0.1	*0.3*
Not getting much exercise	27.3 %	47.0	13.4	**11.2**	0.0	*1.0*

Relative Frequency Distribution – CK13 (B list)

N=3,165	A lot	A little	Not at all	**No opinion**	Refused	*Don't Know*
Eating a high-fat diet	31.4 %	30.8	8.9	**27.3**	0.0	*1.6*
Exposure to the sun	66.4 %	26.1	2.1	**4.9**	0.1	*0.5*
Not eating many fruits and vegetables	42.7 %	33.2	10.6	**12.4**	0.0	*1.2*
Drinking a lot of alcoholic beverages	41.6 %	29.1	11.5	**16.3**	0.0	*1.4*
Having many sexual partners (n = 1,933)	42.5 %	16.7	18.6	**20.2**	0.1	*1.2*
Being a particular race or ethnicity	13.3 %	33.0	25.1	**26.2**	0.0	*2.4*
Pollution	57.2 %	32.1	3.3	**6.9**	0.0	*0.5*
Radon	46.1 %	26.6	3.3	**21.5**	0.1	*2.4*

Relative Frequency Distribution – CK14 (A vs. B list)

		Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	**Have no opinion**	Refused	*Don't know*
It seems like almost everything causes cancer	A	8.8 %	35.3	27.7	16.3	**11.5**	0.1	*0.3*
	B	11.5 %	35.9	26.3	15.1	**10.9**	0.0	*0.3*
There's not much people can do to lower their chances of getting cancer	A	5.3 %	20.9	31.0	34.2	**8.1**	0.0	*0.5*
	B	5.9 %	20.8	34.2	31.2	**7.6**	0.0	*0.2*
There are so many different recommendations about preventing cancer, it's hard to know which ones to follow	A	32.6 %	38.0	13.6	8.0	**7.5**	0.0	*0.3*
	B	33.9 %	37.3	13.1	8.4	**7.1**	0.0	*0.2*

Relative Frequency Distribution – Cumulative 'Not Ascertained' Response

combines no opinion, don't know, refused

		List A (n = 3,204)	List B (n = 3,165)
CK – 13	0	49%	37%
	1	27%	26%
	2	13%	17%
	3 or more	11%	20%
CK - 14	0	80%	81%
	1	14%	13%
	2 or more	6%	6%

Logit Regression –

Odds of 'Not Ascertained' Response for CK-13 Items – Summary of Results

- Regression included indicator variables for interview in English, complete interview, male, age, education, income, Hispanic, race, seek cancer information, others seek cancer information, ever had cancer, family ever had cancer

- **List A —** (smoking, pesticides, fiber, stress, hit breast, family history, little exercise)
  - Amount of variation explained by subject characteristics – range from 3% (hit breast) to 11% (family history)
  - Significant predictors varied by topic; consistent, significant effects for Complete Interview (-), age (+ for groups < 45 years), education (+ for groups less than college degree), seek cancer information (-)

- **List B —** (high fat diet, sun, few fruits, alcohol, many sex partners, race/ethnicity, pollution, radon)
  - Amount of variation explained by subject characteristics – range from 3% (alcohol, radon, many partners) to 17% (exposure to sun)
  - Significant predictors varied by topic; consistent, significant effects for education (+ for groups less than college degree), seek cancer information (-)

Cumulative 'Not Ascertained' Response – Means for Selected Covariates

	List A		List B	
(significant differences shown in **bold**)	CK-13	CK - 14	CK - 13	CK – 14
Spanish Interview / English Interview	**1.30 / 0.92**	**0.67 / 0.26**	**1.75 / 1.37**	**0.47 / 0.25**
Partial Interview / Complete Interview	**1.43 / 0.93**	**0.47 / 0.28**	**1.74 / 1.38**	**0.45 / 0.26**
Female / Male	**1.01 / 0.84**	0.27 / 0.30	**1.48 / 1.26**	0.26 / 0.27
18-34 years / 35 or older	**0.89 / 1.10**	0.29 / 0.27	1.42 / 1.32	0.27 / 0.23
Less than HS grad / HS grad or higher	**1.40 / 0.88**	**0.23 / 0.66**	**1.97 / 1.32**	**0.22 / 0.56**
Income under $25,000/ other	**1.14 / 0.87**	**0.21 / 0.48**	**1.65 / 1.30**	**0.20 / 0.45**
Not Hispanic / Hispanic	**0.92 / 1.17**	**0.25 / 0.53**	**1.36 / 1.62**	**0.25 / 0.37**
Not seek cancer info / Has sought cancer info	**1.10 / 0.77**	**0.40 / 0.15**	**1.63 / 1.14**	**0.39 / 0.13**
Never had cancer / Had had cancer	0.95 / 0.94	0.29 / 0.27	**1.37 / 1.55**	0.27 / 0.24

Regression Results –
Cumulative 'Not Ascertained' for C-14 Series

	List A sample		List B sample	
	B	s.e. (b)	B	s.e. (B)
English Interview	-.059	.060	.047	.059
Complete Interview	-.207	.114	**-.227**	.108
Male	.014	.022	.001	.022
18 - 34 years old	**-.081**	.026	**-.088**	.026
35 – 39 years old	**-.115**	.037	**-.098**	.036
40 – 44 years old	-.065	.036	-.064	.035
Less than HS grad	**.324**	.042	**.249**	.042
HS grad	**.130**	.030	**.115**	.029
Some college	.034	.029	.029	.028
Under $25,000	**.129**	.027	**.137**	.027
Over $75,000	-.050	.030	**-.074**	.029
Hispanic	**.147**	.043	.040	.042
Non-Hispanic Black	**.089**	.035	**.115**	.033
Non-Hispanic Other	**.149**	.052	.070	.047
No race information	.130	.098	.061	.090
Ever seek cancer info	**-.145**	.024	**-.168**	.023
Other seek info	-.039	.030	-.048	.029
Ever had cancer	.021	.035	-.010	.033
Family ever had	-.032	.023	**-.059**	.022
constant	**.514**	.125	**.488**	.121
R^2	.12		.10	

Conclusions

- Despite being asked to report ‘what they think’, many subjects said they had no opinion
  - Probably because they were reluctant to volunteer that they ‘didn’t know’
    - The lowest educated respondents and those who had not looked for cancer information were most likely to respond ‘no opinion, don’t know, or refused’ on both ‘knowledge’ (CK-13) and ‘belief’ (CK-14 questions

Future Considerations

- New rounds of the HINTS should consider alternate question designs
  - Yes, no, don’t know response options
  - Uniform topic list (no split ballot)
  - Question and response wording that makes clear distinction between opinion, knowledge recall, or estimation